

## MEETINGS

The privilege accorded members of the British Ornithologists' Union resident in the British Isles of attending one Club meeting a year at the discretion of the Honorary Secretary, without being invited as a guest or having to become a Club member, will be extended to all members of the Union, wherever resident. The existing provision permitting ornithologists resident overseas, including Union members so resident, to attend Club meetings and to bring guests for up to a year at a time without being invited as a guest or becoming a Club member is to be rescinded; this provision has become an anomaly with the passage of time.

The restriction at present upon the number of times a year that a Club member may bring the same guest to Club meetings is to be removed, as being no longer wanted.

The notice convening a Special General Meeting will have in future to state the purpose of the meeting and no other business may be transacted at it. At present officers and other members of the Committee may be elected only at an Annual General Meeting and it is proposed to make it permissible to make elections to such offices at a Special General Meeting, so that vacancies may, if necessary, be filled without undue delay.

## BULLETIN OF THE CLUB

The existing Rule empowering the Committee to supply to contributors free copies of the *Bulletin* will be rescinded as obsolete: separates are nowadays supplied to authors and it is considered that the general powers of management of the Committee enable it to deal with such matters.

The seven hundred and seventy-fifth Meeting of the Club was held in the Senior Common Room, Sherfield Building, Imperial College, London S.W.7 on Tuesday, 24 November 1987 at 7 p.m. The attendance was 20 Members and 10 guests.

Members present were: Revd. G. K. McCULLOCH (*Chairman*), J. S. M. ALBRECHT, Miss H. BAKER, P. J. BELMAN, Mrs DIANA BRADLEY, Dr H. Q. P. CRICK, J. H. ELGOOD, Miss C. T. FISHER, A. GIBBS, D. GRIFFIN, Dr J. F. MONK, Mrs A. M. MOORE, R. G. MORGAN, Mrs M. N. MULLER, P. J. S. OLNEY, R. E. F. PEAL, G. Z. ROWE, R. E. SHARLAND, N. H. F. STONE and A. R. TANNER.

Guests present were: D. BRADLEY, P. BULL, Dr R. J. CHANDLER, Mrs P. GEATER, Mrs B. GIBBS, Mrs I. McCULLOCH, P. J. MOORE, Dr D. T. PARKIN, Mr and Mrs G. H. SEARLE.

Dr D. T. Parkin gave an address on 'Genetic fingerprinting of wild birds—a new way of looking at bird populations' and an interesting discussion ensued. An abstract of his address will be published in a future number of the *Bulletin*.

## Distribution and numbers of the Masafuera Rayadito *Aphrastura masafuerae* on Isla Alejandro Selkirk, Juan Fernandez archipelago, Chile

by M. de L. Brooke

*Received 2 March 1987*

Endemic to Isla Alejandro Selkirk (33°45'S, 80°45'W) in the eastern Pacific Juan Fernandez archipelago, c. 500 miles off the coast of Chile, the Masafuera Rayadito *Aphrastura masafuerae* is an exceptionally poorly known furnariid. Described by Philippi & Landbeck (1866, *in* Johnson 1967), whose collectors found it in "small flocks in woods" (*in* Sclater

1871), it was subsequently reported as scarce by the Swedish Pacific Expedition of 1916/17. Bäckström, the expedition's zoologist, thought it confined to the higher parts of Isla Alejandro Selkirk clad in *Dicksonia* fern forest (Lönnerberg 1921). In 1928 Dr R. A. Philippi saw 3, but in 1955 W. R. Millie failed to find the species (Johnson 1967). Concern for the species' continued existence (Vaurie 1980) was dispelled in 1983 when, after a gap of 55 years, W. R. P. Bourne (1983) saw 4 and heard others in fern forest.

The preceding paragraph summarizes the entire stock of knowledge of this rayadito, a species quite distinct from *A. spinicauda* of the Chilean mainland. *A. masafuerae* has never been met on the other Juan Fernandez islands, Robinson Crusoe or Santa Clara. Some local islanders on Isla Alejandro Selkirk do know the rayadito, but it is certainly not a familiar bird. The aim of the present study was to assess the species' abundance and habitat preference and to make other observations of relevance to its conservation.

## Methods

During my visit, 14 January to 17 February 1986, as much of Isla Alejandro Selkirk was visited as the rugged terrain allowed. All rayadito observations were mapped and then a grid of 500 × 500 m squares (arbitrary origin) superimposed upon the map. Figure 1 is the resultant map of rayadito distribution by 25 ha blocks. The map takes no account of the fact that some squares were visited more frequently than others, some only once, with consequent differences in the likelihood of detecting rayaditos.

There is no satisfactory contoured topographical map of Isla Alejandro Selkirk. Altitudes given here are those provided at the time by the altimeters of the American Chilean Botanical Expedition. These altitudes may differ from those on published maps.

Attempts to catch rayaditos were unsuccessful, partly because they were not attracted to tape recordings. It was therefore impossible to establish home ranges and densities by colour-ringing. As an alternative, the route from B (the point where the path up the south side of Quebrada Vacas joins the main north-south ridge – Fig. 1) to Los Inocentes peak was walked 4 times in each direction between 17 January and 2 February noting all rayaditos heard or seen within 200 m of this ridge-top route. The proportion of rayaditos detected on one walk but not on a subsequent one was used to estimate the total number of birds in the 400 m wide strip. Of necessity it had to be assumed that, at least within the study period, birds remained within a static home range, but the assumption could not be critically tested. However, rayaditos living close to my camp site could predictably be located regularly in particular areas of fern forest, so I believe the assumption holds good.

## Results

### *Distribution*

The Masafuera Rayadito was recorded (Fig. 1) in 33 of the 25 ha blocks, all at higher parts of the island. The lowest altitude at which the species

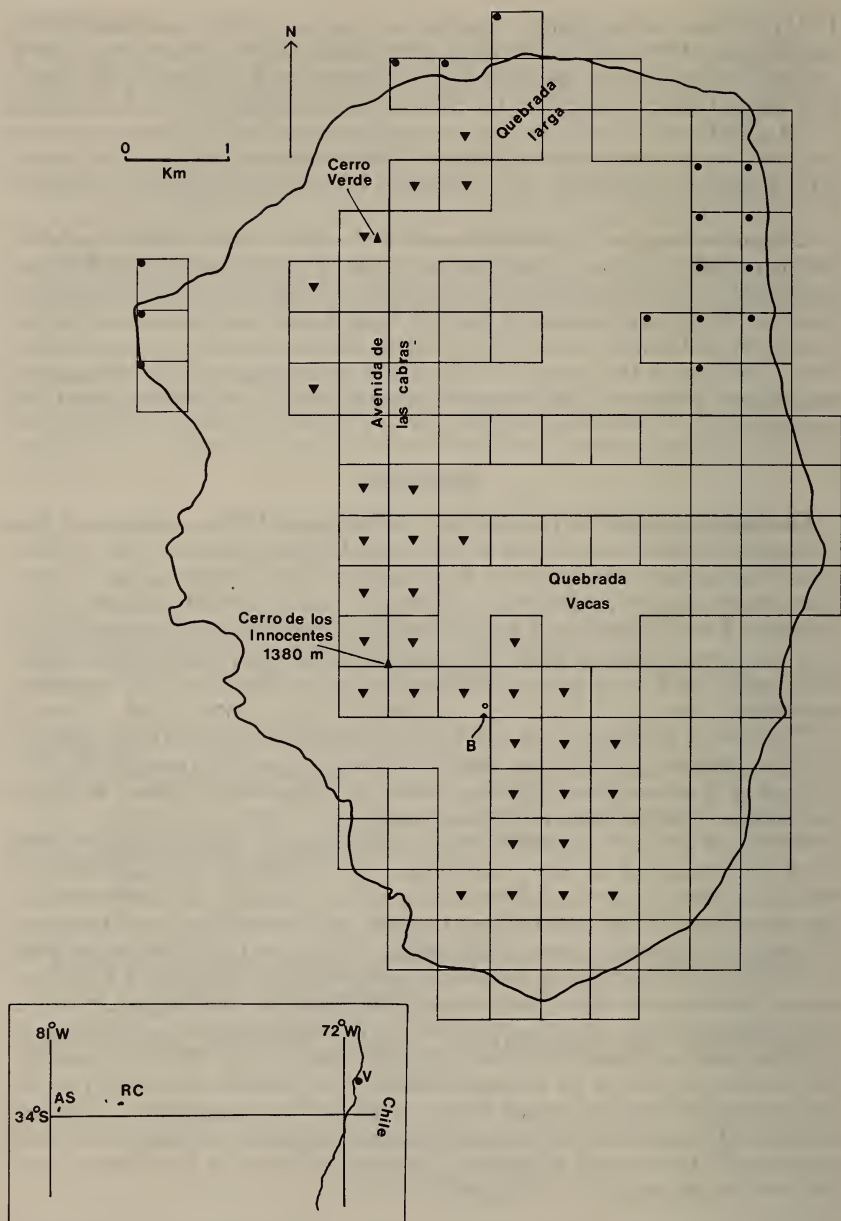


Figure 1. A map of Isla Alejandro Selkirk, Juan Fernandez archipelago, showing the distribution of the Masafuera Rayadito *Aphrastura masafuerae* by 500 x 500 m squares. Squares visited and no rayadito recorded contain no symbols. Squares visited and rayadito(s) recorded contain a central filled triangle. Squares not visited but seen from land and/or sea to be totally unsuitable for rayaditos (e.g. bare rocky cliffs) contain a filled circle top left. Blank areas were not visited. Inset shows position of Islas Alejandro Selkirk (AS) and Robinson Crusoe (RC) in the eastern Pacific west of continental Chile and Valparaiso (V).

was recorded was 600 m in Quebrada Larga at the north end of the island, and the highest at 1300 m near the summit of Los Inocentes. Although doubtless influenced by the fact that I spent more time on the high ground of the southern half of the island, the concentration of observations above 900 m in the area around and immediately to the south of Los Inocentes is probably an accurate reflection of the birds' distribution. In particular the birds were not met on the plateau of Avenida de las Cabras to the south of Cerro Verde at an altitude of 1000-1100 m.

Contrary to Lönnberg (1921) the Masafuera Rayadito was by no means confined to the *Dicksonia externa* fern forest, which occurs between 800 m and 1150 m to the south of Los Inocentes and which is the main nesting habitat of the petrels *Pterodroma e. externa* and *P. longirostris* (Brooke 1987). At higher altitudes and to the north of Los Inocentes the rayadito occurs in the absence of *Dicksonia*, though always, in my experience, where there was nevertheless a complete fern cover of *Lophosauria quadripinnata*. Where the fern cover was broken up into clumps by patches of *Rumex acetosella* and *Anthoxanthum odoratum*, for instance on Avenida de las Cabras, there were no rayaditos.

#### *Density and population estimates*

Rayaditos were met either singly or in pairs (the sexes are similar), but never in flocks. Seventy-seven different individuals were recorded during fieldwork. This figure is undoubtedly below the island population which I now attempt to estimate.

On the 4-times walked 1250 m long route between B and Cerro de Los Inocentes peak, 13 apparently different rayaditos were detected. By the fourth walk on 2 February, when 6 were detected, only 4 of them had been noted on previous walks. A simple calculation ( $13 \times 6/4$ ) suggests a total of 19.5 birds along the route. Alternatively, the highest number of birds (6) was recorded on the walks of both 17 January and 2 February. Two birds were common to both walks. A similar calculation ( $6 \times 6/2$ ) suggests 18 birds along the route. If 20 rayaditos live in  $1250 \times 400 \text{ m}^2$ , the mean home range is  $25,000 \text{ m}^2$  or 2.5 ha.

This very rough calculation implies about 10 birds per occupied 25 ha square. Thirty-three occupied squares are mapped, suggesting a minimum population on the island of 330 birds. There are 26 squares that were not visited (and therefore not mapped in Fig. 1) and which share a border with one or more of the 33 squares where rayaditos were observed. If all of these squares also held 10 rayaditos, the island population rises to 590 birds. These rough calculations point to an island population around 500. The population probably does not exceed 1000 birds.

#### *General observations*

No nests were found and no family parties seen. The only evidence of breeding was an adult carrying food on 2 February, but the bird was not followed on its return to any presumed nest site or fledglings.

Most birds were detected not by sight but by their churring call (Fig. 2). Tape recordings showed that each call, containing about 17-18 similar units lasts around 1-1.2 secs. The call is normally repeated once every 4-5 secs.



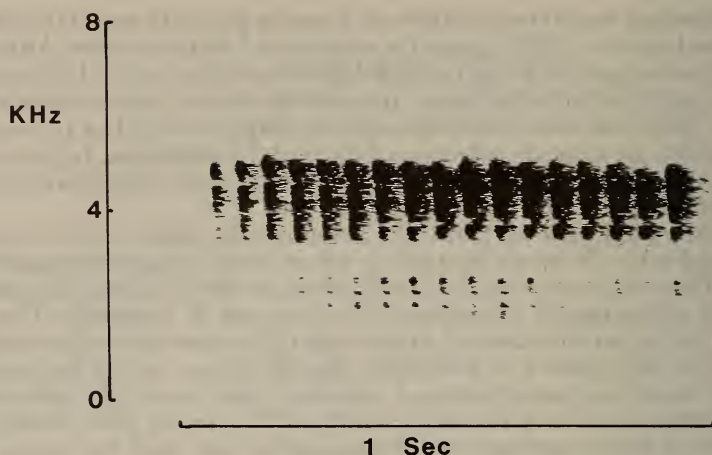


Figure 2. Sonagram of the call of the Masafuera Rayadito *Aphrastura masafuerae*. Recording made on a Phillips N-2205 cassette recorder. Sonagram made on a Kay 6061-B Sound Spectrograph using narrow band filter.

The birds, gleaning insectivores, were most readily encountered along stream courses where luxuriant *Dicksonia* grew to a height of 5 m and was intermingled with *Drimys confertifolia*. This may be the rayadito's preferred habitat.

### Conclusions

Although *A. masafuerae* is by no means numerous there is little reason to suppose its population has altered substantially in the past century. Earlier still, in the eighteenth century when the island's lower slopes were well wooded (Skottsberg 1953), the rayadito might have lived at lower altitudes than it does today. Its present absence from the low altitude pockets of *Myrceugenia schulzei* woodland does not throw light on this possibility, since the modern woodland is so wholly devoid (due to goats) of the understorey on which the rayaditos would presumably have depended.

The future of *A. masafuerae* is probably secure for as long as large tracts of the ferns *Dicksonia externa* and *Lophosauria quadripennata* remain. Although these ferns are apparently not grazed directly by goats, goat trampling may be slowly acting to open up the areas currently covered by ferns. If this fragmentation of fern forest is proceeding, albeit slowly, it could adversely affect the rayadito as areas presently covered by ferns are transformed into the patchwork of plant types of Avenida de las Cabras where rayaditos are now absent.

Accordingly I recommend a study of the effect of goats on these ferns. Besides its relevance to the future of the rayadito, such a study is long overdue botanically. Although there is evidence of the damaging effects of goats on the endemic vegetation of the Juan Fernandez Islands (Saunders

et al. 1982), the details of which plant species are particularly vulnerable or their rates of disappearance under goat grazing are unknown.

#### Acknowledgements

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## A new genus for *Sula abbotti*

by Storrs L. Olson and Kenneth I. Warheit

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Abbott's Booby *Sula abbotti* was described from a single specimen taken on Assumption Island, western Indian Ocean, in 1892 by W. L. Abbott (Ridgway 1893). Although once probably found on other islands in the Indian Ocean (Nelson 1974, Bourne 1976, Stoddart 1981) the species is now extinct everywhere except at Christmas Island, south of Java, where Nelson's (1971) study of its behaviour showed it to differ markedly from other species of Suidae in many respects, and to have a much larger and heavier egg, especially in relation to body size. Bones from Polynesian archaeological sites on Tikopia (a Polynesian outlier of the Solomon Is.) and in the Marquesas show that birds closely related to *Sula abbotti* were widely distributed in the Pacific into very recent times (D. W. Steadman, D. Pahlavan and S. E. Schubel). In addition, it has been suggested that a relict population of a species similar to Abbott's Booby may still exist on Cocos Island in the eastern Pacific (Slud 1967, Nelson 1974).